USDA Foreign Agricultural Service
GAIN Report
Global Agriculture Information Network
Template Version 2.09

Required Report - public distribution

Date: 7/13/2007

GAIN Report Number: BG7006

Bangladesh

Biotechnology

Annual

2007

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Report Highlights:
The agricultural biotechnology sector in Bangladesh is at an embryonic stage. The country is moving toward the adoption of biotechnology for crop improvement and enhancement of the country's food security. On July 19, 2006, the National Taskforce on Biotechnology Development (NTFBD) approved the National Biotech Policy, as prepared by the Ministry of Science, Information, and Communication Technology. The new policy allows bioengineering research, and opens up new possibilities of innovation and development involving living cells. The policy emphasizes protecting indigenous community knowledge, collective innovations, and community rights. Bangladesh needs bilateral and multilateral assistance to build capacity and enhance human resource development, support and implement biotechnology policy and guidelines, and develop a transparent and science-based regulatory system.

Includes PSD Changes: No
Includes Trade Matrix: No
Annual Report
New Delhi [IN1]
[BG]

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SECTION I: EXECUTIVE SUMMARY

The Bangladeshi agricultural biotechnology sector is at an embryonic stage, but the country is moving toward the adoption of biotechnology to improve crops and to enhance the country's food security. Bangladesh officially prohibits the importation for commercial use of agricultural products containing bioengineered products. On July 19, 2006, the National Task Force on Biotechnology Development (NTFBD) approved a policy framework and guidelines for biotechnology. Although Bangladesh has signed and ratified the Cartegena Protocol on Biosafety, it has not yet developed a legal framework to implement the provisions of the Protocol. The absence of a concrete biotech regulatory system could pose a barrier for the export of US agricultural commodities to Bangladesh. The lack of effective intellectual property rights legislation is also an impediment to the development of the biotechnology sector. There is a general recognition within Bangladesh's scientific and policy community that biotechnology offers the best way to provide food security to the country's growing population. However, the country needs bilateral and multilateral assistance in order to build capacity; to develop human resources to support and implement the biotechnology policy and guidelines; and to develop a transparent and science-based regulatory system.

SECTION II: BIOTECHNOLOGY TRADE AND PRODUCTION

The Technical Committee on Crop Biotechnology in the Ministry of Agriculture has approved the import of some biotech products for contained trials; these include a Golden Rice, fruit- and shoot- borer resistant Bt eggplant, late blight resistant potato, insect resistant Bt chickpea, and ring spot virus resistant Papaya. A Bangladesh Agricultural research Institute (BARI) source indicated that it would take one more year to complete the contained trial before they are placed for limited field level trials and then for multi-location trials. After successful completion of this series of trials, which will require several years, the products are likely to be released for commercial cultivation.

The Bangladesh Agriculture Research Council (BARC) is planning to undertake a project to be funded by the Government for DNA fingerprinting of local crops, vegetables and fruits for future use in biotech research and development, and preservation of genetic resources.

Bangladesh is a food aid recipient country (mostly wheat), and is likely to remain so over the coming years. Commercial imports include wheat, rice, cotton, soybean oil (mostly from Brazil), soybean meal (from India), palm oil, and corn (from India). Crops grown using imported seeds include maize, cotton, potato, and some winter vegetables such as cabbage, cauliflower, tomato, carrot, none of which are reported to be bioengineered.

There is a general political consensus in favor of biotechnology in Bangladesh. However, there is a concern among scientists, non governmental organizations (NGOs), and politicians about the safety of biotech products, particularly in the context of preserving Bangladesh's biodiversity. Some NGOs are concerned that a lack of monitoring of biotechnology crops could lead to cross-pollination of existing open-pollinated crops with bioengineered varieties. There is also the misperception that the new technology may be detrimental to the farmers' rights to seeds, because the seed companies, who are mostly multinationals, may establish "ownership" of the seeds of crop varieties under cultivation. Currently Bangladesh lacks the infrastructure to adequately administer technical procedures for assessing biotech products. The enforcement of intellectual property rights due to an arguably underdeveloped judicial system is also a constraint. The lack of purchasing power in the farm sector due to the predominance of small and marginal farmers may also restrict the wider use of biotech seeds, which farmers believe are higher priced vis-à-vis non-biotech varieties.

The Ministry of Environment and Forest (MOEF), which serves as the lead ministry for biosafety issues, organized a series of biotech awareness workshops in major cities of the country in 2006-07.

SECTION III: BIOTECHNOLOGY POLICY

Bangladesh is yet to establish a regulatory framework for agricultural biotechnology, but it does have a National Biotech Policy. The Ministries of Agriculture (MOA), Science and Information Technology (MOSICT), and Environment and Forest (MOEF) are jointly responsible for the development of a biotechnology policy and regulatory framework. In 2000, "Biosafety Guidelines" were developed under the leadership of the MOSICT, and were notified by the government in 2001. No serious attempt to implement the Guidelines was made, due mainly to an intra-Ministry rivalry over who should lead Bangladesh's National Committee on Biosafety. A consensus was reached that the MOSICT would lead biotechnology research and development, while the MOEF would lead biosafety efforts.

The National Task Force on Biotechnology Development (NTFBD), headed by the Prime Minister, is the apex body of the five national-level biotechnology committees that address biodiversity, biosafety, crop biotechnology, livestock and fisheries biotechnology, and medical biotechnology. A meeting of the NTFBD on July 19, 2006, approved the National Biotech Policy, as prepared by the MOSICT, and allows bioengineering research. The policy emphasizes protecting indigenous community knowledge, collective innovations, and community rights. Action programs will begin immediately to develop biotechnology in various sectors such as agriculture, health, industry, and environment. Under the policy, legal measures will be developed to achieve a "balanced" system to protect the interests of the innovators as well as the public.

The Secretary of the MOEF heads the National Technical Committees on Biosafety (NCB). The principal role of NCB is to draft and adopt legislation and measures to ensure the environmentally safe management of modern biotechnological development, including research, and the development, use, and trade in biotechnology products. A draft of a National Biosafety Framework (NBF) came out in 2007 as an outcome of the National Biosafety Development Project in Bangladesh, working under the United Nations Environment Program/Global Environment Facility (UNEP/GEF) Global Project on Development of National Biosafety Frameworks in collaboration with MOEF. The Framework provides the basis for future regulation for the management of biotechnology products in Bangladesh. The objectives of the NBF are two fold – provide oversight of the existing systems, and identification of future needs for an effective and transparent legislation and administrative system.

As the regulatory system is not yet in place, no biotechnology crop has been approved for commercial cultivation. However, the draft Biosafety Guidelines contain standards and codes of practice related to the "risks" associated with the environmental release of bioengineered products. They also propose a decision-making framework that allows experimental field testing based on (1) the testing agency's familiarity with plant and genetic modification, (2) the ability to confine the bioengineered plant, and (3) the perceived environmental impact, should the plant escape confinement. There are no separate regulations governing the labeling of biotechnology products.

Bangladesh is a signatory to the Cartagena Protocol on Biosafety. It ratified the protocol in 2004, but rules implementing the Protocol have not yet been formulated. Agricultural commodities imported by Bangladesh include mostly rice, wheat, oilseeds (rape, mustard, and soybeans), pulses (lentil and peas), maize, cotton, fresh fruits, and spices. Bangladesh is also a signatory to the Convention on Biological Diversity, which it has ratified.

Bangladesh currently lacks an effective legislation to protect intellectual property rights in plant varieties. A draft of the Plant Variety Protection Act, which includes as its goals the conservation of biodiversity and farmers' rights to seeds of indigenous crop varieties, has been under review by various stakeholders for more than six years. Citing the CPB, the draft "Biosafety Guidelines" state that an Advance Informed Agreement (AIA) shall be applied by the government prior to the first intentional trans-boundary movement of bioengineered products for intentional introduction into the country's environment.

SECTION IV: MARKETING ISSUES

The Bangladeshi tariff structure does not differentiate between biotech and non-biotech agricultural commodities. Nor are there any biotech-specific non-tariff barriers on imports. Bangladeshi importers, retailers, and consumers appear mostly unconcerned and/or unaware of the possible presence of biotech traits in imported agricultural commodities. There is no mechanism to detect the presence of biotech traits in imported food products. Price, taste, and religious considerations are the major determinants of consumers' food choice. Bioengineered seeds for planting may experience difficulty gaining market acceptability, unless the apprehensions about such crops are removed and prices become more affordable. Nonetheless, a large majority of scientists support biotech product development and importation, provided their food safety and environmental impacts are properly assessed, and field-testing is conducted under appropriate bio-safety guidelines.

SECTION V: CAPACITY BUILDING AND OUTREACH

USDA funding supports a few Bangladeshi universities' agricultural biotechnology research and capacity building and USAID is currently funding the Agricultural Biotechnology Support Project (ABSP II) and the South Asia Biosafety Program (SABP) in Bangladesh. The SABP completed its tenure in September 2006. In March 2007, USDA and the Bangladesh Agricultural University jointly organized a "Project Review Workshop" to assess the outcomes of the biotech agricultural research projects financed from the local currency fund generated by USDA commodity grants to the GOB. Though these projects involve mostly academic research, the outcomes of these projects would guide and support future biotech research in Bangladesh along with development of human resources.

At the multilateral level, the United Nations' Food and Agriculture Organization (FAO) is working with the Bangladeshi Government to develop policy guidelines and regulatory documents under a project called "Capacity Building in Biosafety of GM crops in Asia." The FAO in May 2004 prepared a document called "Assessment of Utilization and Potential of Biotechnological Advancement for Agriculture Development in Bangladesh," wherein recommendations were made for institutional and framework-building for agricultural biotechnology in Bangladesh.

SECTION VI: REFERENCE MATERIAL

Revised "Biosafety Guidelines" - www.doe-bd.org/biosafety_guidelines.html